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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/806,156	03/23/2004	Yoshimasa Araki	00862.017965	2173

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NEW YORK, NY 10112

EXAMINER
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MRUK, GEOFFREY S

ART UNIT	PAPER NUMBER
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2853

DATE MAILED: 08/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/806,156

Applicant(s)

ARAKI ET AL.

Examiner

Geoffrey Mruk

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 19 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) 3 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 2 and 4-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Election/Restrictions***

Claim 3 is withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 19 June 2006.

Applicant's election with traverse of species 2, claim 3 in the reply filed on 19 June 2006 is acknowledged. The traversal is on the ground(s) that "the specification reveals that the two species are closely related and would not require separate fields of search". This is not found persuasive because although there is no requirement to show separate classification in regards to an election of species, a burden does exist because a separate search would be required.

The requirement is still deemed proper and is therefore made FINAL.

### ***Priority***

Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Japan on 24 March 2003. It is noted, however, that applicant has not filed a certified copy of the 2003-080204 application as required by 35 U.S.C. 119(b).

### ***Drawings***

Figures 24-29 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in

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compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

Claims 1-5 and 9-11 are objected to because of the following informalities:

Claims 1-5 and 9-11 recites the limitation "medium". There is insufficient antecedent basis for this limitation in the claim. For examination purposes, the examiner will interpret the limitation "medium" to imply liquid.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1, 2, 4, 5, and 8-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Suzuki (US 5,625,385).

With respect to claim 1, Suzuki discloses a discharging apparatus (Column 1, line 12) having a discharge head (Fig. 1, elements 1a-1d) in which a plurality of discharge nozzles (Fig. 1, element 2) are arranged to discharge a liquid supplied (Column 5, lines 34-45) from supply ports through discharge ports, comprising removing means (Fig. 1, element 6) for removing a medium in said discharge nozzles by applying a pressure difference between said supply ports and discharge ports of said discharge nozzles (Column 4, lines 28-54), said removing means further comprising a cap member (Fig. 1, elements 3a-3d) which operates to cover a predetermined one of said supply ports or discharge ports (Column 4, lines 24-28), when removing the medium in said discharge nozzles, so as to come into tight contact with said discharge head (Column 5, lines 24-30).

With respect to claim 2, Suzuki discloses said removing means generates a negative pressure in said discharge ports (Column 5, line 21, i.e. suction pressure), with said discharge ports being covered by said cap member, and removes the medium in said discharge nozzles by suction through said cap member (Column 4, lines 24-28).

With respect to claim 4, Suzuki discloses when removing the medium in said discharge nozzles, said cap member (Fig. 1, element 3a) operates to come into tight contact with said discharge head (Fig. 1, element 1a) so as to cover only an arbitrary one of said supply ports or discharge ports without coming into contact with any adjacent one of said supply ports or discharge ports (Fig. 6; Column 8, lines 61-67; Column 9, lines 1-3).

With respect to claim 5, Suzuki discloses said removing means comprises cap members (Fig. 1, elements 3a-3d) equal in number to a number of said discharge nozzles (Fig. 1, element 2; Column 5, lines 46-50), and a connecting member (Fig. 1, element 5) to be connected to either one of communication channels connected to said cap members, wherein when removing the medium in said discharge nozzles, said cap members operate to come into contact with said discharge head so as to cover said discharge ports without coming into contact with adjacent ones of said discharge ports (Column 4, lines 28-54), and said connecting member operates to be connected to either one of said communication channels, so that the medium in said nozzles is removed through a cap member that is connected to that one of said communication channels which is connected to said connecting member (Fig. 6; Column 8, lines 61-67; Column 9, lines 1-3).

With respect to claim 8, Suzuki discloses said plurality of discharge nozzles are formed such that some of said plurality of discharge nozzles discharge liquids having different liquid compositions (Column 5, lines 34-45), and said removing means accumulates the liquids removed from said discharge nozzles, such that a liquid having the same liquid composition is accumulated together (Fig. 6; Column 8, lines 61-67; Column 9, lines 1-3).

With respect to claim 9, Suzuki discloses a removing method of removing a medium from discharge nozzles in a discharging apparatus (Column 4, lines 28-54).

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With respect to claim 10, Suzuki discloses a method in a discharging apparatus of removing a medium from some of discharge nozzles formed in a discharge nozzle in a discharging apparatus (Column 4, lines 28-54).

With respect to claim 11, Suzuki discloses a discharging apparatus (Column 1, line 12) having a discharge head (Fig. 1, elements 1a-1d) in which a plurality of discharge nozzles (Fig. 1, element 2) are arranged to discharge a liquid supplied from supply ports (Column 5, lines 34-45) through discharge ports, a removing method of applying a pressure difference between the supply ports and discharge ports of the discharge nozzles (Column 4, lines 28-54), thereby removing a medium in the discharge nozzles, wherein a cap member which covers a predetermined one of the supply ports or discharge ports is brought into contact with the discharge head, and the medium in the discharge nozzles is removed through the cap member (Fig. 6; Column 8, lines 61-67; Column 9, lines 1-3).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki (US 5,625,385) in view of Shirato et al. (US 4,345,262).

Suzuki discloses a discharging apparatus having a discharge head (Column 1, line 12; Fig. 1, elements 1a-1d).

However, Suzuki fails to disclose:

- an electrothermal transducer which generates heat energy for liquid discharge, and
- wherein said discharge head discharges the liquid from said discharge ports by utilizing film boiling caused by the heat energy applied by said electrothermal transducer.

Shirato discloses an ink jet recording method where "The size (diameter) of the droplet discharged and sputtered from the orifice 6 is determined by various controlling factors such as an electrical energy quantity to be introduced into the electro-thermal transducer 4 as an input information, a transmission efficiency of the heat energy as converted from the electrical energy into the recording liquid 3, a conversion efficiency of the electro-thermal transducer, a diameter of the orifice 6, an inner diameter of the liquid chamber 2, a distance from the position of the orifice 6 to the transducer 4, an operating force to be imparted to the recording liquid 3, a quantity of the liquid 3 subjected to the operating force, and specific heat, heat conductivity, boiling point, latent heat for evaporation, etc. of the recording liquid 3" (Column 3, lines 46-60).

At the time of the invention, it would have been obvious for one of ordinary skill in the art to use the transducer disclosed by Shirato in the ink jet recording apparatus disclosed by Suzuki. The motivation for doing so would have been "to thereby enable the high speed recording to be effected with satisfactory energy efficiency" (Column 2,



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lines 20-22) and "to provide an ink jet recording method using heat energy, by which the recording characteristic, particularly the quality of the recorded image, is remarkably improved" (Column 2, lines 23-25).

### ***Conclusion***

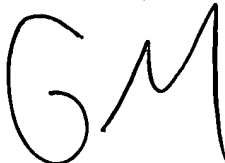
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Geoffrey Mruk whose telephone number is 571 272-2810. The examiner can normally be reached on 7am - 330pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on 571 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

GSM

8/1/2006



**STEPHEN MEIER**  
**SUPERVISORY PATENT EXAMINER**